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February 18, 2004

Mr. Bryan Foley  
U.S. Department of Energy  
P.O. Box 550, A6-38  
Richland, WA 99352

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EDMC

Re: Provisional Approval of the 200-TW-1/2/PW-5 OU Remedial Investigation Report and Required Improvements to Vadose Zone Modeling for 200-TW-1 and Other 200 Area Operable Units

Dear Mr. Foley:

The U.S. Geological Survey (USGS) completed a review of vadose zone modeling for the 200-TW-1/2/PW-5 Operable Unit (OU) Group Remedial Investigation (RI) report. The review was performed at the request of the U.S. Environmental Protection Agency (EPA) and with the concurrence of the Washington Department of Ecology (Ecology). The review revealed several weaknesses in the modeling methods applied to the 216-T-26 crib. The modeling issue is the last holdup in approval of the RI report by EPA and Ecology; DOE previously agreed to add a commitment for ecological risk assessment.

The EPA and Ecology provisionally approve the report because the RI has obtained data of sufficient quality and quantity to satisfy data needs. The EPA and Ecology are providing the following stipulations of the provisional approval to allow DOE to move forward in developing quality information upon which to base the feasibility study:

1. The U.S. Department of Energy (DOE) must perform additional modeling of the 216-T-26 crib by applying USGS recommendations to the satisfaction of the EPA and Ecology;
2. The Tri-Parties (DOE, Ecology, EPA) will investigate the need for further modeling of sites within this OU group and within other OUs where modeling has been performed to determine delivery of contaminants through the vadose zone and predicted resulting concentrations in groundwater;
3. Additional modeling will be performed on any sites selected through the screening described in #2 above;
4. Any significant changes in the fate and transport will be used as inputs into remedy selection for each site modeled and similar or analogous sites.

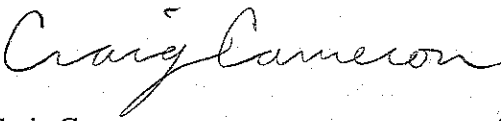
The additional modeling stipulated in this letter is necessary to ensure the best possible information upon which to help base remedial decisions. It is also important for maintaining stakeholder and public confidence in our cleanup work at Hanford. The EPA and Ecology believe that additional scope for new modeling will be limited due to our focus on significant modeling discrepancies and higher-risk waste sites.

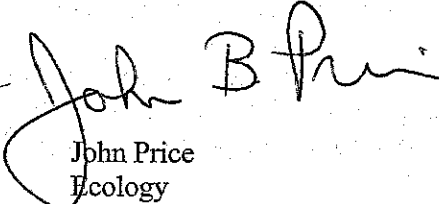
The EPA and Ecology require the following USGS recommendations be followed for modeling at the 216-T-26 crib and at other appropriate sites (sites may have different combinations of these recommendations depending on the particulars of their modeling scenarios):

- A. Apply a Monte Carlo approach to investigate the sensitivity of the breakthrough curves to parameter uncertainty for the 216-T-26 crib and at least one other site. The System Assessment Capability people may have some helpful advice on such Monte Carlo simulations;
- B. Assume hydraulic conductivity is isotropic and model as such, unless well-supported guidelines for estimating anisotropic parameters are identified;
- C. If the model indicates that dipping beds divert recharge flux, enlarge the solution domain enough that the source areas for recharge through the waste site are included in the solution domain;
- D. Consider the hypothesis that if Tc-99 and tritium profiles simulated using a  $K_d = 0$  are not well matched by field data; the reason may be that the water flow has not been accurately simulated by the model. Modify the model and/or parameters until a good match has been found using  $K_d = 0$  for Tc-99 and tritium;
- E. Include in the modeling report, comparisons made between the 216-T-26 site where core sample information was the basis for modeling versus other sites where inventory and volume disposed played a larger role in the set up of the model. The original modeler indicated that the comparisons were favorable;
- F. The DOE is strongly advised to gain a better understanding of large-scale hysteretic parameters and develop a means of addressing them using the STOMP code to refine future modeling efforts.

EPA and Ecology look forward to continued cooperation on resolving these issues. Please contact Craig Cameron (509 376-8665) or John Price (509 736-3029) if you have questions or comments.

Sincerely,

  
Craig Cameron  
EPA

  
John Price  
Ecology

cc: Mary Todd-Robertson, FH  
Dibakar Goswami, Ecology  
Dennis Faulk, EPA  
Mike Goldstein, EPA  
Brian Drost, USGS  
Bill Herkelrath, USGS  
Admin. Record - 200-TW-1